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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,717	06/12/2006	Shunsuke Toyoda	JFE-06-1127	7167

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IP GROUP OF DLA PIPER LLP (US)
ONE LIBERTY PLACE
1650 MARKET ST, SUITE 4900
PHILADELPHIA, PA 19103

EXAMINER

VELASQUEZ, VANESSA T

ART UNIT	PAPER NUMBER
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1793

NOTIFICATION DATE	DELIVERY MODE
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02/05/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pto.phil@dlapiper.com

Office Action Summary	Application No. 10/582,717	Applicant(s) TOYODA ET AL.	
	Examiner Vanessa Velasquez	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/29/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

Claims 4, 5, and 9-16 are canceled. Currently, claims 1-3 and 6-8 are pending and presented for examination.

Duplicate Claims Warning

The previous warning issued with respect to the duplicity of claims 11-13 and 14-16 with claims 1-3 and 6-8 is moot in view of the canceled status of claims 11-16.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on July 29, 2009 was filed after the mailing date of the non-final Office action on July 8, 2009. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 1793

2. Claims 1, 2, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshii et al. (US 2002/0079028 A1). The claims stand rejected for the same reasons described in the Office action dated July 8, 2009.

3. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshii et al. (US 2002/0079028 A1), as applied to claims 1 and 6 above, and further in view of Fujita et al. (US 2003/0116238 A1). The claims stand rejected for the same reasons described in the Office action dated July 8, 2009.

4. Claims 1-3 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (US 2003/0116238 A1). The claims stand rejected for the same reasons described in the Office action dated July 8, 2009.

Response to Arguments

Applicant's arguments filed October 7, 2009 have been fully considered but they are not persuasive.

Applicant primarily argues that the steels of Yoshii and Fujita do not inherently possess a fatigue endurance of at least 500 MPa after quenching because the manufacturing processes in Yoshii and Fujita are not identical to that in the present specification. Applicant asserts that this difference is critical to distinguishing the present invention from the prior art because different manufacturing methods result in steels with different properties. In order to support such an assertion, Applicant

Art Unit: 1793

compares Steel Nos. 32-34 (Table 6, specification) and states that even though they have the same composition (they are all Steel "B"), they each possess different fatigue endurance as result of the different cooling times to which they were subjected.

Specifically, Applicant attributes the lower fatigue endurance of Steel No. 33 to its relatively short cooling period cooled, as compared to the higher fatigue endurance of Steel Nos. 32 and 34, both of which were cooled for longer periods of time. In response, the Examiner respectfully points out that Steel No. 33 contains ferrite in a volume fraction that lies outside the claimed range. Steel No. 33 contains 25% ferrite, whereas the claims require a volume fraction between 30% and 98%. Thus, it appears that the difference in fatigue endurance results from the microstructure. This is further evidenced by the present specification (all citations hereafter refer to the Pre-Grant Publication US 2007/0144632 A1) wherein it is stated that if the volume fraction of ferrite falls below 30%, the formability of the steel is not guaranteed, thereby drastically lowering the fatigue endurance after quenching (para. [0057]).

It is anticipated that Applicant will take the position that the duration of cooling before coiling should be taken into consideration because it ensures that the proper amount of ferrite is formed (specification, para. [0063]). In response, Yoshii and Fujita already teach steels with overlapping chemical composition and overlapping ferrite microstructure. Thus, cooling time would be irrelevant to said position since the microstructure that should form as a result of the cooling step is already formed in the steel of the prior art.

Art Unit: 1793

It is important to consider what factors substantively impact the fatigue endurance of the steel. The present specification seems to indicate that composition, microstructure, and coiling temperature are the primary contributors. For example, the specification discusses that carbon, manganese, sulfur, aluminum, oxygen, molybdenum, calcium, the carbon equivalent, and the Grossman factors greatly affect the fatigue endurance after quenching (para. [0023], [0025], [0027], [0028], [0030], [0035], [0042], [0044], [0049]). The specification also describes how important the ferrite grain diameter and volume fraction are for securing sufficient fatigue endurance (para. [0053], [0057]). The only process step that is explicitly stated as being critical to fatigue endurance is the coiling temperature (para. [0064]). Yoshii and Fujita teach that coiling is conducted at temperatures of 400-700°C (para. [0053]) and up to 750°C (para. [0153]), respectively. These temperatures overlap the preferred coiling temperatures (para. [0064]). As demonstrated in the previous Office action, the above parameters critical to ensuring the desired fatigue endurance overlap the values in Yoshii and Fujita. Therefore, one of ordinary skill in the art would expect the steels of Yoshii and Fujita to possess the claimed endurance fatigue value.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 1793

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Velasquez whose telephone number is 571-270-3587. The examiner can normally be reached on Monday-Friday 9:00 AM-6:00 PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached at 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/582,717
Art Unit: 1793

Page 7

/Vanessa Velasquez/
Examiner, Art Unit 1793
/Scott Kastler/
Primary Examiner, Art Unit 1793